this is rarely of clinical significance except in malnourished or geriatric patients. Unlike earlier analogues, and owing to a mainly enterohepatic excretion, the plasma clearance of minocycline is largely independent of renal function. Recent papers[1 2] indicate that uraemia is not exacerbated if minocycline is used in cases of renal insufficiency.

Finally, we are not aware of anything in the published literature to support the theory that this case of interstitial nephritis had anything but a temporal association with minocycline.

G W R HILL
MARYANNE ROACH

Lederle Laboratories,
Gosport, Hants

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General medicine and visual side effects

SIR,—While I have admired Mr P A Gardiner's attempts to present a simple and lucid account of basic ophthalmology for non-specialist practitioners, I feel I must write to question his remarks on iatrogenic disorders (17 February, p 461).

The drug of choice for pupillary dilatation for ophthalmoscopy is tropicamide (Mydriacyl) 0·5% on account of its rapid onset, producing a mydriasis of short duration with minimal effect on accommodation in this strength.[1] However, if cyclopentolate (Mydrilate) is chosen for pupillary mydriasis for ophthalmoscopy the 0·1% solution should be used, not the 0·5% solution, which has a prolonged and undoubted effect on accommodation. It has, moreover, been shown that attempts at reversing with pilocarpine the mydriasis produced by parasympatholytic agents, such as cyclopentolate, is not effective.[2] It should be added that the use of a drug such as cyclopentolate rather than atropine is much more likely to cause central nervous system disturbances in young children.[3-5]

I think Mr Gardiner should have clarified the difference in systemic drug effects in patients with chronic simple glaucoma and closed-angle glaucoma. It must be emphasised that patients in whom the diagnosis of chronic simple glaucoma has been made and who are under treatment are not at risk with the drugs he suggests, for the mild anticholinergic effect of such drugs does not jeopardise the control of intraocular pressure established with anti-glaucoma agents.[6] As regards narrow-angle glaucoma, patients in whom a peripheral iridectomy has been performed or who are using pilocarpine to prevent angle closure developing are at minimal risk, and it is only in the patients in whom a diagnosis has not been made (or who have not been treated) that the systemic drugs may produce pupillary dilatation and thus close the angle. The drugs mentioned are not contraindicated in patients having treatment for closed-angle or chronic simple glaucoma and no glaucoma patient should be denied appropriate systemic therapy with the drugs listed.[7]

Probably the most important point of all is the statement that "the clinical evidence that long-term treatment with systemic steroids causes cataracts is tenuous." Although there has been contention, the weight of evidence of many studies has shown that steroid-induced cataracts are directly related to the dosage and duration of treatment,[8 10] and only a maintenance dose of 7·5 to 10 mg of prednisone (or equivalent dosage of other steroid preparation) is safe and will not lead to posterior subcapsular lenticular opacities. Indeed, once these opacities have developed they will not regress and may well progress despite withdrawal of systemic corticosteroids; so his suggestion of ophthalmological surveillance when such opacities develop is, of course, only observational and can in no way effect the course of events.

The statement that chloroquine and similar drugs used for malaria are seldom used long enough for visual problems to arise is generally true but this drug is a cumulative toxin and there have been reports of airline pilots developing problems after having used chloroquine over a prolonged period in prophylactic therapy. I myself just six weeks ago have seen a West African who has typical chloroquine retinopathy, with resultant gross field loss, from using chloroquine in moderate dosage for short periods intermittently over a period of 20 years to control acute attacks of malaria.

Ethambutol produces visual disturbance not by toxic effects on the retina but by an optic neuritis (toxic optic neuropathy). This must be emphasised, for the visual loss has an acute onset and the drug should be withdrawn immediately.[11-13]

Without wishing to prolong my comments unduly I would finally like to remark that in the appendix some doubt must be cast on the effects attributed to various drugs listed. I would hope that readers of this part of the article would refer to established texts on ocular toxicology before accepting these observations as established dogma.

S DAVIDSON

Department of Ophthalmology,
St Paul's Eye Hospital,
Liverpool

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Chiropractors and the AMA

SIR,—The "closed-shop" attitude of the American Medical Association towards chiropractic is exposed in Barbara Culliton and Wallace Waterfall's article (17 February, p 467). The GMC, on the other hand, accepts that doctors may refer patients to non-medical chiropractors if they consider them to have the necessary skill, on condition that the referring doctor retains ultimate responsibility for the patient. This appears to be a far more reasonable attitude.

What purpose does it serve to attack chiropractors by misrepresenting the facts? Is chiropractic a cult? The founder, D D Palmer, used such terms as "innate intelligence" to describe the body's healing power; but he was simply stating that a therapist does not heal but merely stimulates the body's own healing mechanism. In no way was he founding a religion. It is of course true that there is a tendency for Americans once convinced of something to "sell" it with a quasi-religious fervour.

Is chiropractic unscientific? I am quite certain that I have a far better scientific explanation of the way in which mechanical derangement of the vertebral column causes symptoms and "adjustment" restores normal neuromuscular co-ordination than I have for the actions of many drugs, physical therapies, and even surgical procedures.

Is chiropractic a health hazard? It is in fact one of the safest forms of treatment, accidents being incredibly rare. If chiropractors delay the referral of patients for more appropriate treatment, such a situation can only be encouraged by physicians and surgeons who refuse to take referrals from chiropractors.

Medicare requires that a subluxation be demonstrable by *x* ray. Many are not as they consist of fixation of a joint within its normal range of movement. They can therefore only be diagnosed by motion palpation. Medicare's requirement encourages excessive use of radiographs.

In order to understand common pain syndromes and neurophysiological effects relating to disorders of muscles and joints, particularly of the spine, and to learn effective manipulative procedures to treat them, I found it necessary to go outside the medical profession to a chiropractic college. What a pity so few doctors have done this.

Let us hope that we in Britain will not follow the example of our American colleagues. In our relations with such a potentially useful body of people as the chiropractors surely co-operation is better than confrontation.

M B HOWITT WILSON

Woking, Surrey

Homoeopathic medicine

SIR,—As many doctors and patients are aware, there is at present a tremendous boom in the teaching and practice of all varieties of healing outside the conventional medical establishment. This has arisen from the mechanistic and specialised approach in much of modern medicine and the increasing concern of the public, and indeed of many doctors too, about the side effects, toxicity, and allergic reactions of many modern drugs. This has resulted in the setting up of various "health clinics" around the country and many lay unqualified persons advertising as consultant homoeopaths, acupuncturists, herbalists, etc.

Some of these do undoubtedly help patients, but the dangers of practitioners treating conditions which require surgery, replacement therapy, or expert advice are all too obvious to the trained physician, and bring into disrepute those qualified doctors who are trying to broaden their therapeutic skill by using homoeopathy along with orthodox medicine. There seems to be no way in which such practitioners can be prosecuted by law, and the only way the public can be safeguarded is for doctors and patients to be made aware of who is properly trained and who is not.

The only official homoeopathic medical body is the Faculty of Homoeopathy, registered by Act of Parliament and recognised

by inclusion within the National Health Service. The Faculty fellows, members, and medical associates are all registered medical practitioners, who obtain a diploma of MFHOM or FFHOM as a postgraduate degree. Any other homoeopathic qualification in the UK is not a medical qualification, and anyone who advertises as a homoeopath is a lay practitioner.

We are aware that there is still a great deal of antipathy and opposition to homoeopathy in this country in certain medical quarters, but I would appeal to those who hold this view to support those of us who sincerely believe in the value of homoeopathy, used with judgment and skill together with a sound knowledge of clinical medicine and therapeutics. Failure to do so will not cause homoeopathy to wither away—it will only encourage more lay practice, to which patients will turn if there are not enough qualified doctors practising homoeopathy.

HAMISH W BOYD
President, Faculty of Homoeopathy of Royal London Homoeopathic Hospital

Glasgow Homoeopathic Hospital, Glasgow G12 0NR

24,25-Dihydroxycholecalciferol and calcium absorption in uraemia

SIR,—We were interested to read of the apparent lack of effect of 24,25-dihydroxyvitamin D_3(24,25$(OH)_2D_3$) on calcium absorption in uraemic patients reported by Drs J Szymendera and K Galus (25 November, p 1465), which contrasts with our own previously reported findings.[1]

This contrast may reflect differences in the type of patient studied (our patients were anephric); in the dose and duration of treatment with 24,25$(OH)_2D_3$; or, as they suggest, in the method used to measure calcium absorption. Although the differences between tests for calcium absorption were clearly not critical in demonstrating effects of 1,25$(OH)_2D_3$ or 1α-hydroxycholecalciferol, we have additional evidence that the effects of 24,25$(OH)_2D_3$ on calcium absorption differ from those of 1,25$(OH)_2D_3$. Using a low dose of carrier calcium (20 mg) for the ^{47}Ca tracer dose, we have noted little change in plasma ^{47}Ca curves in anephric patients given 24,25$(OH)_2D_3$, whereas large changes were seen after 1,25$(OH)_2D_3$ (Cochran *et al*, unpublished). From our inability to demonstrate effects of 24,25$(OH)_2D_3$ in this way, and the apparent increases in calcium absorption noted using the whole body counter,[1] we deduce that 24,25$(OH)_2D_3$ either increases intestinal calcium transport at distal sites in the gastrointestinal tract or affects its metabolism following absorption, but has little if any effect on duodenal calcium transport.

It seems possible that Drs Szymendera and Galus have additional information which might be helpful. In an earlier paper[2] Szymendera, using his double isotope technique, demonstrated that maximal rates of absorption occurred only 16 minutes after ingestion of the tracer dose. It seems reasonable to assume that the kinetics of calcium absorption at the time of its peak rate are particularly indicative of its absorption in the proximal gut. We would be interested to know if they have been able to calculate maximal rates of absorption from the data obtained in their series of uraemic patients, and, if so, whether these rates changed as little as the fractional absorption in response to 24,25$(OH)_2D_3$. We have previously shown that the maximal rate of absorption changed more markedly in response to therapy than the fractional absorption,[3] so the former variable should have the twin advantages of increased specificity and increased sensitivity in determining whether 24,25$(OH)_2D_3$ has any measurable effect on calcium absorption in the upper small intestine of uraemic patients.

J A KANIS
JONATHAN REEVE
R G G RUSSELL

Division of Radioisotopes, Clinical Research Centre, Harrow, Middx HA1 3UJ

[1] Kanis, J A, *et al*, *British Medical Journal*, 1978, **1**, 1382.
[2] Szymendera, J, Heaney, R P, and Saville, P D, *Journal of Laboratory Clinical Medicine*, 1972, **79**, 570.
[3] Reeve, J, Hesp, R, and Veall, N, *British Medical Journal*, 1974, **3**, 310.

**We sent a copy of this letter to the authors, whose reply is printed below.—ED, *BMJ*.

SIR,—We appreciate Dr Kanis and others' comments. But we feel that the data presented in our report do not contrast with those they reported.[1] Our data simply provide evidence that 24,25-dihydroxycholecalciferol (24,25$(OH)_2D_3$) does not influence active calcium transport in the proximal jejunum. This is also their contention—they state in their letter that this agent has little if any effect on calcium absorption in the duodenum. It may be deduced from the apparent difference between the increased absorption shown by whole-body counter and the unchanged absorption shown by our double-isotope technique that 24,25$(OH)_2D_3$ increases intestinal calcium absorption at distal sites. But this contention needs straightforward evidence. The second possibility is that 24,25$(OH)_2D_3$ affects calcium accretion only; this effect might explain the increased retention of calcium tracer as well. The latter contention is in agreement with a recent report by Ornoy *et al*,[2] which presents evidence that 24,25$(OH)_2D_3$ is intimately associated with bone formation and mineralisation.

Concerning the relation of total and maximal absorption of calcium in the intestine, the data presented in the accompanying table show that maximal rates of absorption tended to increase with the increased total absorption, and vice versa. However, the changes were of about the same size, which is contrary to expectation. If the changes in the maximal rate of absorption were affected by treatment with 24,25$(OH)_2D_3$, one would expect that they would be many times greater than the increase in total absorption.[3]

In conclusion, we contend that differences in both the peak rate of absorption and the percentage absorption represent natural variability and do not seem to be influenced by the treatment.

J SZYMENDERA

Maria Sktodowska-Curie Memorial Institute of Oncology, 00-973 Warsaw

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1-alpha-hydroxy vitamin D_3 in primary hyperparathyroidism

SIR,—We have read with interest the paper from Dr D A Heath's group on the value of 1α-hydroxy vitamin D_3 (1αHCC) in the treatment of primary hyperparathyroidism before parathyroidectomy (17 February, p 450). While we agree on the need for careful monitoring of the serum calcium we would like to record our conclusion that the Birmingham experience may relate to patients with less severe bone problems than the group previously described by ourselves.[1]

It is difficult to grade the severity of skeletal disease in primary hyperparathyroidism; but, in addition to the serum alkaline phosphatase concentration and the results of routine radiology, we believe that quantitative bone histology, serum 25-hydroxy vitamin D_3 concentration, radiocalcium absorption, ^{99m}Tc-diphosphonate retention, and even symptoms relating to musculoskeletal involvement, may be relevant indices, which also relate to the probability of severe postparathyroidectomy hypocalcaemia and related complications. Each of Dr Heath's bone disease groups of six patients contains at least one patient with a normal serum alkaline phosphatase concentration, and the highest concentration in the group not receiving 1αHCC was only sbout three times normal; whereas six patients with primary hyperparathyroidism initially described by ourselves as having been treated by 1αHCC had levels ranging from three to 12 times normal. In our experience the combination of severe osteitis fibrosa and a normal alkaline phosphatase concentration occurs only in the presence of marked magnesium deficiency. It is a pity that, with the exception of the serum calcium concentrations, the data for the Birmingham patients have been averaged as there must be real doubt about the true comparability of the two groups with bone disease.

It was not possible to judge the variation in the serum calcium from day to day before the administration of 1αHCC in the Birmingham patients, but, from the experience of ourselves and others,[2] the fluctuations in five of the six patients after starting 1αHCC could be accounted for by the spontaneous changes in the serum calcium which occur in this disease. The sixth patient, whose serum calcium concentration rose by 1·5 mmol/l (6 mg/100 ml) after starting on 2 μg of 1αHCC daily, is the first such report we have encountered —and we ourselves have experience of some 15 patients with primary hyperparathyroidism and bone disease managed in this fashion. It would have been of great value to have had further details of this particular case.

Calcium absorption in uraemic patients treated with 24,25-dihydroxycholecalciferol

Case No	Total absorption (% oral dose)		Maximal rate of absorption: Time (min)		% dose/min		μmol Ca/min	
	Before	After	Before	After	Before	After	Before	After
1	8·25	8·24	22	22	0·0603	0·0726	3·00	3·50
2	23·07	24·28	13	16	0·2574	0·1681	12·75	8·25
3	12·34	7·55	36	86	0·1120	0·0410	5·50	2·00
4	5·72	14·34	155	74	0·0203	0·0573	1·00	2·75
5	14·06	3·80	46	175	0·1243	0·0142	6·25	0·75
6	9·76	28·19	23	15	0·0734	0·4990	3·75	24·50

Conversion: SI to traditional units—Calcium: 1 μmol/min = 40 μg/min.